

M.K. Crawford
Biography
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I am a member of the research staff of the DuPont Company. I received a B.S. in Chemistry from Stony Brook University in 1976 and a Ph.D. in Physical Chemistry from Columbia University in 1981. This was followed by an appointment as a post-doctoral fellow in the physics department of the University of California, Berkeley, working in the area of infrared astronomy. In 1985 I joined the Central Research and Development Department at DuPont. Since then, my research interests have included phosphors for medical x-ray imaging and security applications; structural transitions and isotope effects in high temperature superconductors and related materials; structure and magnetism of transition metal oxides; spectroscopy of zeolites and catalysts; development of new polymers for semiconductor lithography; and, most recently, the structure and dynamics of polymer nanocomposites.

In many of these research areas neutron scattering has played an important role in understanding the chemistry and physics of the materials. Beginning in the early 1990s with neutron diffraction at the HFBR at Brookhaven National Laboratory, HFIR at Oak Ridge National Laboratory, and the research reactor at the NIST Center for Neutron Research, my research has gradually expanded to include a wide range of neutron scattering techniques at NIST, SNS/HFIR and ISIS. These techniques include SANS, cold neutron time-of-flight spectroscopy (chopper, back-scattering and neutron spin echo), triple axis inelastic scattering, and diffuse elastic scattering, as well as prompt gamma and neutron activation analysis. In addition, I have used synchrotron x-ray scattering techniques at the NSLS at Brookhaven and the Advanced Photon Source at Argonne National Laboratory for structural studies of various classes of materials.

I have served on a number of neutron or x-ray scattering committees over the past 20 years, including DOE review panels for HFIR and HFBR, the APS and the NSLS-2; the program advisory committee at the NIST Center for Neutron Research; the science review committee at the SNS/HFIR at Oak Ridge; and the SNS/HFIR User Group executive committee, including a term as committee chair. I also serve as a proposal reviewer for the NIST and Oak Ridge neutron scattering programs. Finally, I was a co-organizer of a session at the ACNS meeting in June 2012, and will co-organize a session on neutron scattering at the 2013 MRS Fall meeting. These and other activities have provided me with a long-term perspective on the evolution and current state of neutron scattering research in North America, and the wide range of research activities that are important to this field.